BILLMAYER & HAFFERMAN, INC.

RECEIVED
JUN 2 8 2010
D.N.R.C.

June 28, 2010

Michelle Lemieux
Montana Dam Safety Program, DNRC
P.O. Box 201601
Helena, MT 59620-1601

RE: **2010 Emergency Action Plan** for the Kootenai Development Impoundment Dam Operation & Maintenance

Dear Michelle:

Enclosed is the 2010 Emergency Action Plan (EAP) for the Kootenai Development Impoundment Dam (KDID), Montana Dam Safety Permit Number MT-1470. There have been changes to names and telephone numbers in the EAP; please be sure and review the document.

Please be sure and remove all the previous versions of the EAP located in your KDID O&M Manual and replace it with this copy. Please remember the importance of having one EAP and assuring it is the most updated copy. If you have any questions, please do not hesitate to call me.

Respectfully,
Billmayer & Hafferman Inc.

Kurt Hafferman, P.E.

Encl: 2010 EAP
Cc: file R.56.1

2191 Third Ave. East • P.O. Box 1139 Kalispell, MT 59903-1139 Phone: 406-257-8708 Fax: 406-257-8710

EMERGENCY ACTION PLAN

KOOTENAI DEVELOPMENT IMPOUNDMENT DAM

OWNER

KOOTENAI DEVELOPMENT COMPANY
c/o REMEDIUM GROUP INC.
6401 POPLAR AVE SUITE 301
MEMPHIS, TENNESSEE 38119

UPDATED:
APRIL 12, 2010
MARCH 3, 2009
FEBRUARY 1, 2007
JULY 27, 2003
FEBRUARY 15, 2002

IF THE KOOTENAI DEVELOPMENT IMPOUNDMENT DAM IS FAILING, OR FAILURE SEEMS IMMINENT CALL

LINCOLN COUNTY SHERIFF..... 911 or 406-293-4112

LINCOLN COUNTY EMERGENCY MANAGEMENT DEPT.... 911 or 406-293-6295

PROJECT ENGINEER:

BILLMAYER & HAFFERMAN INC. 406-257-8708
KURT HAFFERMAN P.E. ..... (w) 406-257-8708
(h) 406-314-4541
(c) 406-212-0404

OWNER REPRESENTATIVES:

ROBERT MEDLER..... (c) 901-493-5856
(w) 901-820-2024
(h) 901-753-5833

ROBERT MARRIAM..... (c) 901-277-9031
(w) 901-820-2023
(h) 662-236-6956

TABLE OF CONTENTS

TABLE OF CONTENTS (cont.)

I. INTRODUCTION EMERGENCY ACTION PLAN

A. Purpose

The purpose of this emergency action plan (EAP) is primarily to safeguard lives and secondarily to reduce property damage to the citizens of Lincoln County. This EAP includes the area from the junction of Rainy Creek and the Kootenai River upstream to the dam and reservoir impoundment area including Highway 37 and the USFS road that leads up Rainy Creek.

B. Description of Dam

A full description of the structural features and technical data for the Kootenai Development Impoundment Dam (KDID) are provided in Appendix A. The KDID is in Lincoln County, in the NW ¼ of Section 22, and the SW ¼ of Section 15 in Township 31 North (T31N), Range 30 West (R30W), and located on Rainy Creek, a tributary of Kootenai River. The dam and reservoir are owned by the Kootenai Development Company, c/o Remedium Group, Inc. of Memphis Tennessee, and was originally used as an impoundment for mine tailings by W.R. Grace & Co. The dam is a 130 ft. high earthen tailings impoundment dam. The toe of the dam is at elevation 2796 ft. MSL and the elevation of the bottom of the existing reservoir is near 2891 ft. MSL, showing approximately 95 ft. of tailings between the toe of the dam and the existing bottom of the reservoir. The starter dam was constructed in 1971 with additions (or lifts) made in 1975, 1977, and 1980. There is no outlet for the dam and inflows and outflows are uncontrolled. Technical data pertaining to Kootenai Impoundment Dam and its structures are shown in Appendix A.

C. Access to Dam

Access to the dam is off of Montana Highway 37, 5 ¼ miles east of Libby at the USFS #401 Rainy Creek road. The dam is located 2.6 miles off of the highway. As shown on the Evacuation Map in Appendix B, the USFS #401 Rainy Creek Road is the only road access to the KDID. This road is located in the inundated area below the dam and will be flooded in the event of a dam failure or peak flood event. The nearest telephone is at a residential subdivision southeast of the Rainy Creek Road and Highway 37 intersection approximately ½ mile southeast. There is irregular cell telephone coverage near the top of the dam, the top of the old mine site and at the Rainy Creek/Highway 37 intersection.

The Kootenai Development dam is located on a USEPA Superfund site and access to the dam is severely restricted to protect the health and safety of persons accessing the site. The USFS #401 Rainy Creek Road servicing the dam is blocked by a gate near the intersection of Highway 37. **Access must be requested from USEPA Information Center (406-293-6194) or from Remedial Project Manager, Mike Cirian (406-291-5335, cell: 406-202-3791) or from the USEPA's contractor-CDM (Health & Safety Officer is Damon Repine – cell phone #: 406-293-1374).**

Entry into the restricted zone requires special training in hazardous waste operations and emergency response (HAZWOPER) and adequate personal protective

equipment. Decontamination facilities for personnel and mobile equipment must also be available and must be used when exiting the site.

Kootenai Development has a contractor "on call" who has the required training equipment and trained manpower, as well as knowledge of the facilities. **The contractor contact person is Mike Chapman (home phone #: 406-293-8305; cell phone #: 406-293-1983).**

D. Hazard Evacuation Area

The hazard evacuation area extends from the dam and follows Rainy Creek to the point where Rainy Creek enters the Kootenai River. Hazards include the possible inundation of the work area below the dam, inundation of the Rainy Creek road, inundation of the Highway 37 crossing, and possible inundation of the Parker property south of the highway to the confluence of Rainy Creek with the Kootenai River. There is currently one structure between Highway 37 and the Kootenai River; the Mel and Learh Parker work area and garage. Inundation and evacuation maps are in Appendix B.

E. Responsibility and Authority

Pursuant to the Dam Safety Act, Chapter 15 of Title 85, MCA, the dam owner is responsible for production, coordination, maintenance, and implementation of this emergency action plan. The extent of owner implementation was defined through coordination of this plan with the County Sheriff and Lincoln County Emergency Management Agency (EMA) Director. The extend of the responsibility and authority of the Lincoln County Sheriff and Lincoln County Emergency Management Agency (EMA) Director and their implementation of this plan was defined through coordination with each party and their signature below.

F. Periodic Review/Update

The owner reviews and updates this EAP annually. Review and update are completed by a qualified professional engineer and will be accomplished as required by the dam's operating permit, but no less than every five years.

G. Approval

By my signature, I acknowledge that I, or my representative, have reviewed this plan and agree to the tasks and responsibilities assigned herein for my department and/or agency.

Robert A Meek _____ Signature 6/22/10 Date

OWNER, KOOTENAI DEVELOPMENT IMPOUNDMENT DAM

Daryl R. Anderson _____ Signature 6/10/2010 Date

LINCOLN COUNTY SHERIFF'S OFFICE

_____ Signature _____ Date

EMERGENCY MANAGEMENT AGENCY

equipment. Decontamination facilities for personnel and mobile equipment must also be available and must be used when exiting the site.

Kootenai Development has a contractor "on call" who has the required training equipment and trained manpower, as well as knowledge of the facilities. **The contractor contact person is Mike Chapman (home phone #: 406-293-8305; cell phone #: 406-293-1983).**

D. Hazard Evacuation Area

The hazard evacuation area extends from the dam and follows Rainy Creek to the point where Rainy Creek enters the Kootenai River. Hazards include the possible inundation of the work area below the dam, inundation of the Rainy Creek road, inundation of the Highway 37 crossing, and possible inundation of the Parker property south of the highway to the confluence of Rainy Creek with the Kootenai River. There is currently one structure between Highway 37 and the Kootenai River; the Mel and Learh Parker work area and garage. Inundation and evacuation maps are in Appendix B.

E. Responsibility and Authority

Pursuant to the Dam Safety Act, Chapter 15 of Title 85, MCA, the dam owner is responsible for production, coordination, maintenance, and implementation of this emergency action plan. The extent of owner implementation was defined through coordination of this plan with the County Sheriff and Lincoln County Emergency Management Agency (EMA) Director. The extend of the responsibility and authority of the Lincoln County Sheriff and Lincoln County Emergency Management Agency (EMA) Director and their implementation of this plan was defined through coordination with each party and their signature below.

F. Periodic Review/Update

The owner reviews and updates this EAP annually. Review and update are completed by a qualified professional engineer and will be accomplished as required by the dam's operating permit, but no less than every five years.

G. Approval

By my signature, I acknowledge that I, or my representative, have reviewed this plan and agree to the tasks and responsibilities assigned herein for my department and/or agency.

Robert G Meikle ______ Signature 6/22/10 Date
OWNER, KOOTENAI DEVELOPMENT IMPOUNDMENT DAM

______ Signature ______ Date
LINCOLN COUNTY SHERIFF'S OFFICE

Victor L White ______ Signature 6/16/10 Date
EMERGENCY MANAGEMENT AGENCY

II. NOTIFICATION PROCEDURES FOR IMMINENT OR ACTUAL FAILURE

A. IF KOOTENAI IMPOUNDMENT DAM IS FAILING, TWO THINGS MUST BE DONE IMMEDIATELY:

(1) Any and all workers or persons in the area upstream of the dam must be warned and any workers, persons or residence below the dam should be evacuated following the Evacuation Map shown on the next page and in Appendix B.

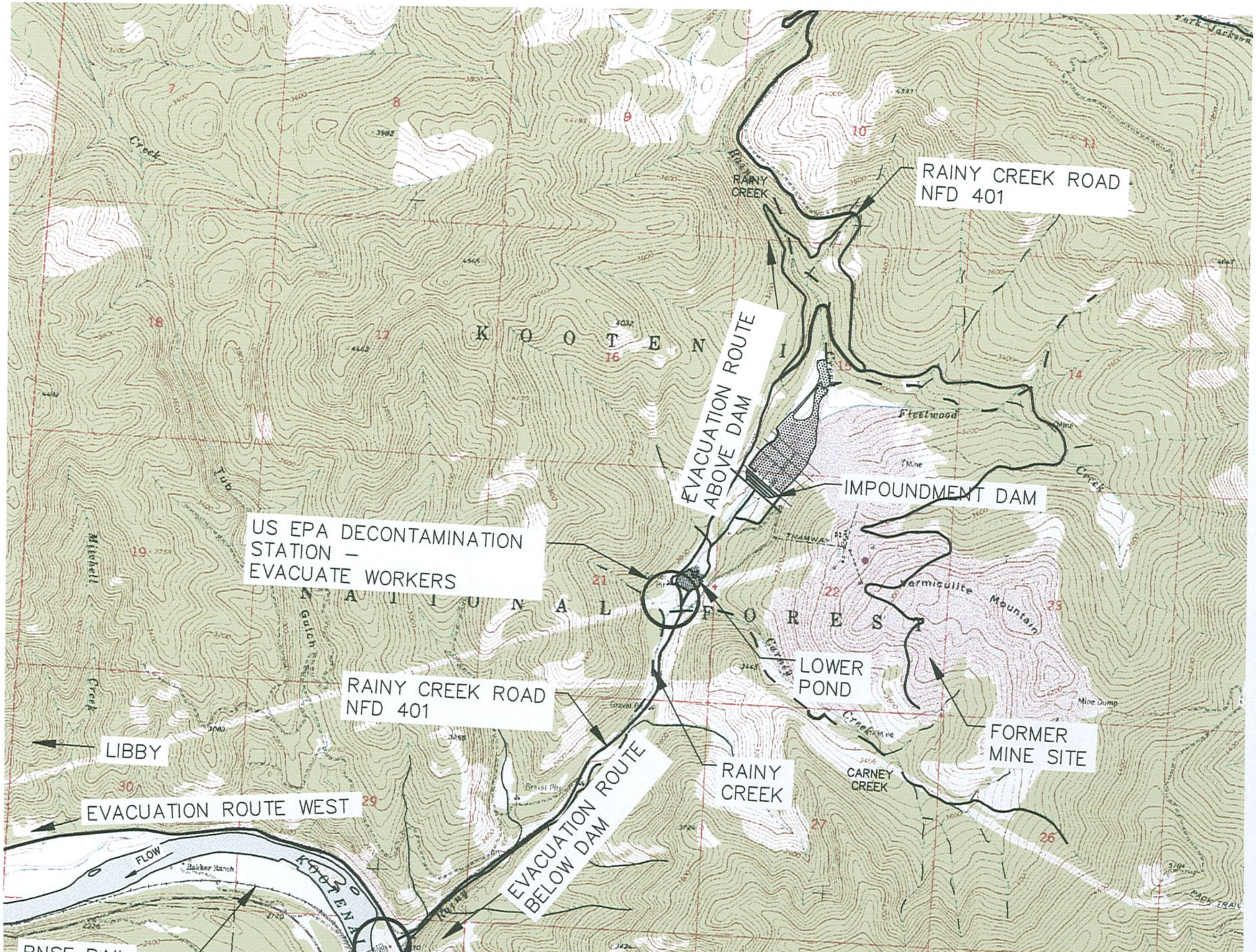
(2) Evacuate anyone at or around the Mel Parker residence across the highway from the entrance gate, shown on the Evacuation Map;

B. AS OBSERVER IT IS YOUR RESPONSIBILITY TO CALL THE TELEPHONE NUMBERS SHOWN ON THE TELEPHONE NUMBER FLOW CHART ON THE SECOND FOLLOWING PAGE. CALL UNTIL YOU REACH AN ACTUAL PERSON AND DESCRIBE YOUR OBSERVATIONS

(1) Call the Sheriff's Dispatch Center (911 or 293-4112) or the Lincoln County Emergency Services Agency (293-6295), if they have not already been notified. Be sure to say, "This is an emergency." They will call other authorities and the media and begin the warning plan. If you do not reach any person on the flow chart go to the telephone directory on page in Appendix C.
(2) If you do not reach the Sheriff's dispatch or the Lincoln County Emergency Management Dept., call the next telephone number until you reach a live person. If at all possible, stay on the telephone until released by the emergency responder.
(3) If Mel Parker is not at his property be sure someone notifies Mr. Parker at 293-9705. Mr. Parker has the only building below the dam in immediate danger that should be evacuated.
(4) Warn anyone else in immediate danger to evacuate to safety. This includes someone on the dam, directly below the dam, above the dam, or any downstream evacuees, if so directed by the sheriff or emergency responder.
(5) Contact the Disaster and Emergency Services staff at least once every hour. They may request your assistance in evacuating residents.
(6) If all means of communication are lost:
    a. Try to find out why
    b. Get someone else to try to reestablish communications. If these means fail, take care of immediate problems and send someone to get another radio or telephone that works.
(7) Determine and try to put into action any steps that might save the dam or reduce damage to the dam or hazard area downstream. The downstream area inundated by a dam failure is shown on Inundation Map in Appendix B. These steps should be taken only if it is safe to do so.

FIGURE 1

EVACUATION MAP


RAINY CREEK ROAD
NFD 401
RAINY CREEK
KOOTENAI NATIONAL FOREST
EVACUATION ROUTE
ABOVE DAM
IMPOUNDMENT DAM
US EPA DECONTAMINATION
STATION –
EVACUATE WORKERS
Vermiculite Mountain
LOWER
POND
FORMER
MINE SITE
RAINY CREEK ROAD
NFD 401
RAINY
CREEK
CARNEY
CREEK
LIBBY
EVACUATION ROUTE WEST
EVACUATION ROUTE
BELOW DAM
FLOW
Bakker Ranch
KOOTENAI
Fleetwood
Creek
Tub
Gulch
Mitchell
Creek
Mine Dump
Gravel Pits
BNSF RAIL
EVACUATION

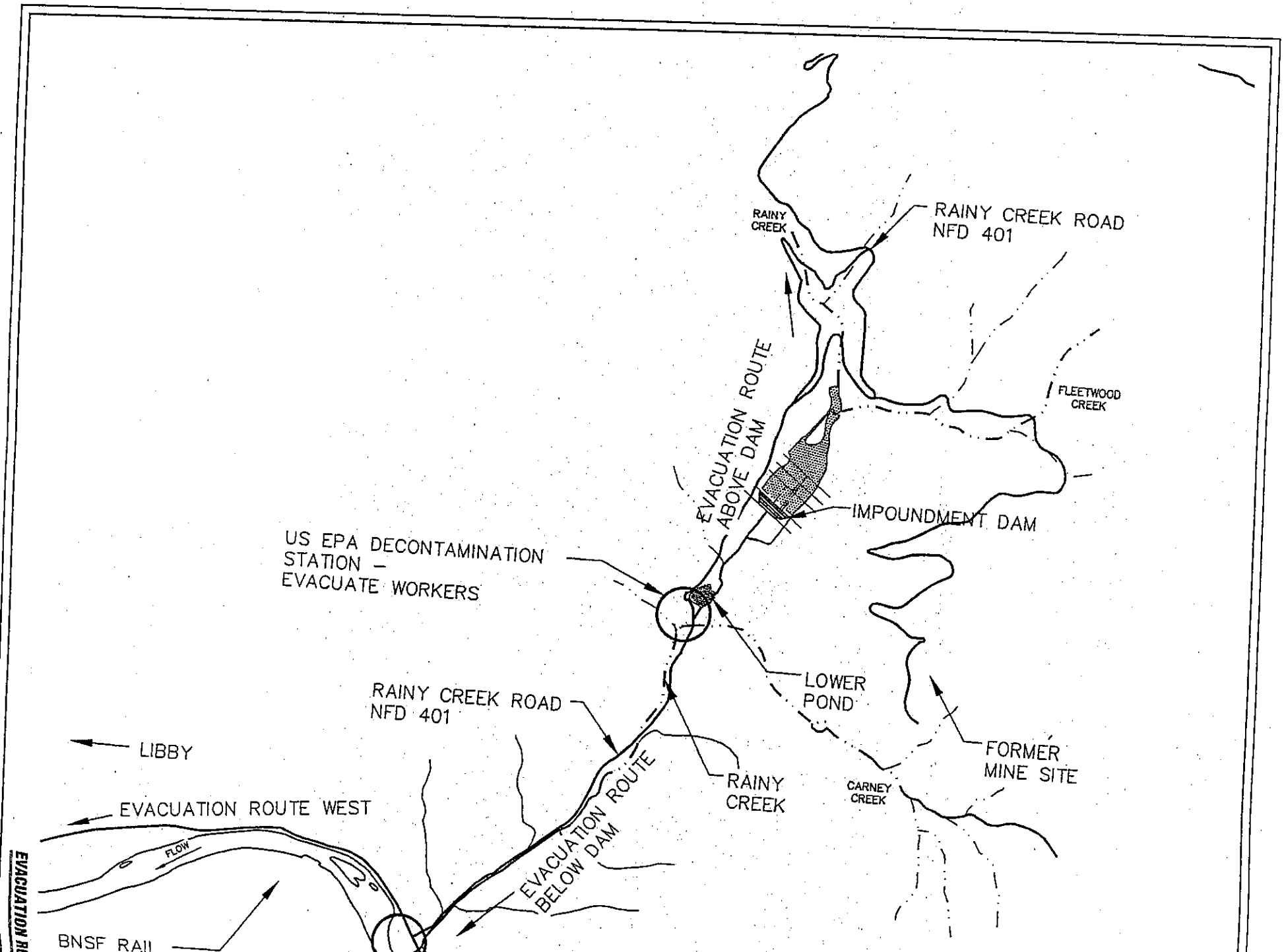
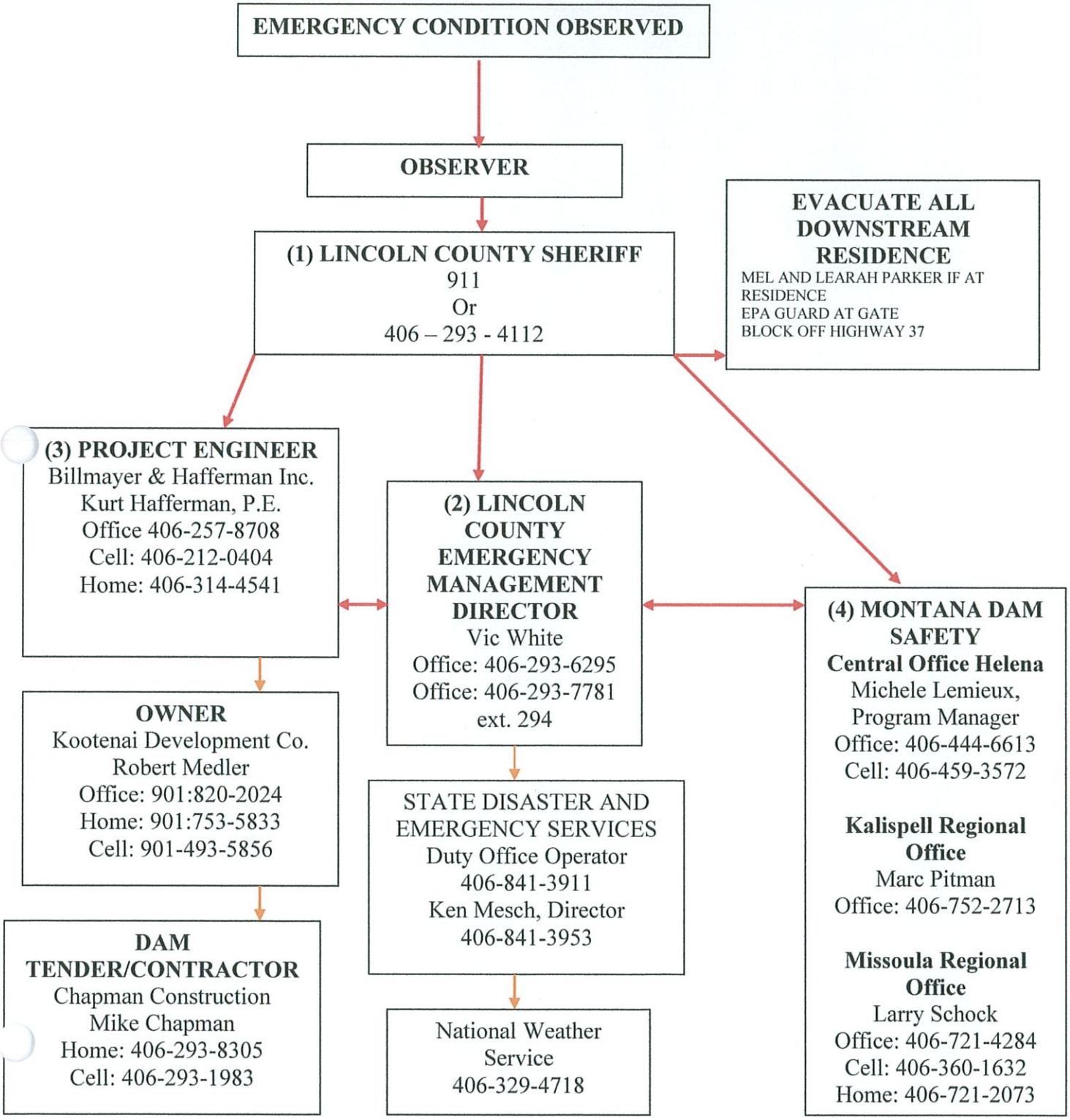

RAINY CREEK
RAINY CREEK ROAD NFD 401
FLEETWOOD CREEK
EVACUATION ROUTE ABOVE DAM
IMPOUNDMENT DAM
US EPA DECONTAMINATION STATION – EVACUATE WORKERS
LOWER POND
RAINY CREEK ROAD NFD 401
LIBBY
RAINY CREEK
CARNEY CREEK
FORMER MINE SITE
EVACUATION ROUTE WEST
FLOW
EVACUATION ROUTE BELOW DAM
BNSF RAIL
EVACUATION RU

FIGURE 2
EMERGENCY ACTION PLAN NOTIFICATION PROCEDURES

IMMINENT OR ACTUAL FAILURE

NOTIFICATION FLOW CHART



III. NOTIFICATION PROCEDURES POTENTIALLY HAZARDOUS SITUATION

A. IF YOU OBSERVE AN UNUSUAL OCCURANCE, DETERMINE THERE IS A POTENTIALLY HAZADROUS SITUATION. A potentially hazardous situation is an event or condition not normally encountered in the routine operation of the dam and reservoir. Among the unusual occurrences that may affect the dam are dam embankment problems (see section B.2.), failure or over topping of the spillway, heavy precipitation or rapid spring snow melt, landslides, earthquakes, erosion, theft, vandalism, acts of sabotage, water appearing on the face of the dam, and serious accidents. These occurrences may endanger the dam, the public, or the downstream valley and may necessitate a temporary or permanent revision of the dam's operating procedures. Help in these situations can be obtained by notifying those people shown in Figure 3.

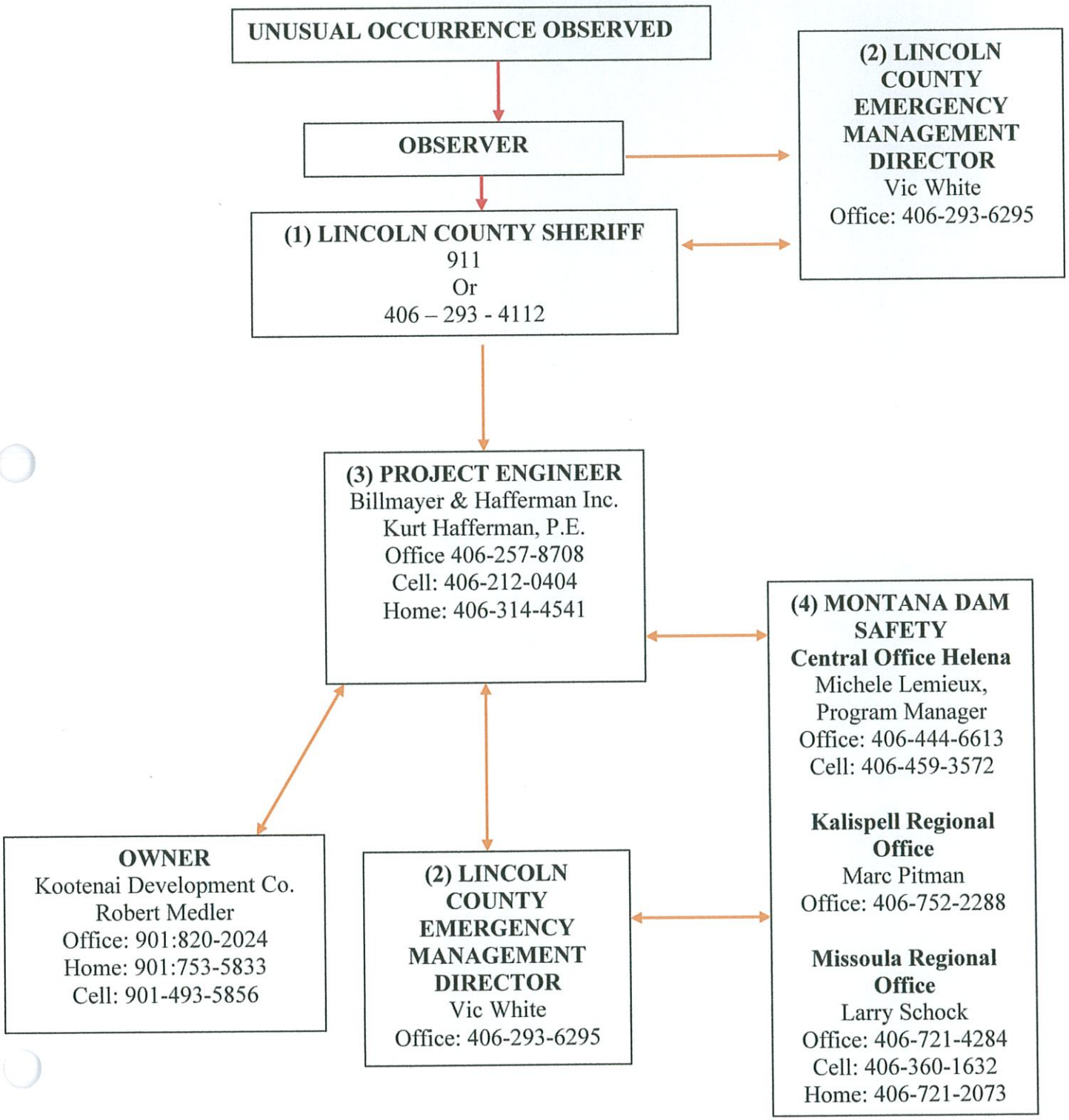
1. If the dam owner, contractor, or other observer discovers an unusual condition of the dam embankment that could threaten the structure:
    a. Complete the Dam Incident Report Form in Appendix D.
    b. Have a qualified engineer inspect the dam as soon as possible to determine whether emergency action is necessary.
    c. Notify the county Emergency Management Agency Director (293-6295) of the potential problem.
    d. Contact the Dam Safety Program (444-6613) of the Department of Natural Resources and Conservation (DNRC).
2. Among the conditions the observer should watch for are:
    a. Overtopping of the dam by flood waters
    b. Loss of material from the dam crest due to storm wave erosion
    c. Slides on either the upstream or downstream slope of the embankment as evidenced by
        1. Sloughing
        2. Cracking
        3. Bulging
        4. Scarping
    d. Erosional flows through, beneath, or around the embankment as evidenced by
        1. Excessive seepage
        2. Discoloration of the seepage
        3. Boils on the downstream side
        4. Sinkholes
        5. Changes in the flow from drains
    e. Over topping of the spillway due to excessive flood flows, clogging of the trash rack leading to the spillway.
    f. Movement of the dam on its foundation as evidenced by
        1. Misalignment
        2. Settlement
        3. Cracking

3. Before calling either an engineer or DNRC to report a problem, the observer or dam owner shall use the form in Appendix D to ensure sufficient information is provided for the engineer to analyze the problems. After talking to the engineer, it may be helpful to document the condition of the dam by making a sketch on the form in Appendix D, showing the extent of the problem. Revise the sketch periodically if the problem develops further. Section V Mitigation Procedures includes further guidelines for courses of action to take to mitigate the effect of many problems.

FIGURE 3
EMERGENCY ACTION PLAN NOTIFICATION PROCEDURES

POTENTIALLY HAZARDOUS SITUATION

NOTIFICATION FLOW CHART



IV. POSTING OF THE NOTIFICATION FLOWCHART AND DISTRIBUTION OF THE EAP.

(1) The Lincoln County Sheriff's Office and the Lincoln County Emergency Management Services Director have copies of this plan. The Montana DNRC Water Resources Office in Kalispell, Missoula and the Central Office in Helena all have copies of this plan. The distribution list for all parties that have received this plan is provided in Appendix E.

V. POTENTIALLY HAZADROUS SITUATION: MITIGATION ACTIONS

(1) Besides normal monitoring of the dam's condition, which is done at least monthly, the owner will provide continuous monitoring and inspection during and after extreme events such as storms and earthquakes. Information on the magnitude of an earthquake or storm can be obtained from the DNRC Dam Safety Program (444-6613). Actions are suggested below to mitigate problems that may develop, but those actions should never be continued at the risk of injury or at the expense of lessening efforts related to evacuation. Monitoring should identify any of the following potential problems.

A. Potential Problems and Immediate Response Actions

a. OVERTOPPING BY FLOOD WATERS
   i. Place sandbags along the crest to increase freeboard and force more water through the spillway and outlet.
   ii. Provide erosion-resistant protection to the downstream slope by placing plastic sheets or other materials over eroding areas.
   iii. Divert flood waters around the reservoir basin, if possible.

b. LOSS OF FREEBOARD OR DAM CROSS SECTION DUE TO STORM WAVE EROSION
   i. Place additional riprap or sandbags in damaged areas along the crest to prevent further embankment erosion.
   ii. Lower the water level to an elevation below the damaged area.

c. SLIDES IN THE UPSTREAM OR DOWNSTREAM SLOPE OF THE EMBANKMENT
   i. Stabilize slides on the downstream slope by
      1. weighting the toe area with additional soil, rock, or gravel, and then
      2. restoring lost freeboard by placing sandbags at the crest
   ii. Monitor the reservoir levels

d. EROSIONAL FLOWS THROUGH THE EMBANKMENT, FOUNDATION, OR ABUTMENT
   i. Plug the flow with whatever material is available (e.g. hay bales, bentonite, or plastic sheeting) if the entrance to the leak is in the on the upstream side of the dam or in the reservoir basin.

ii. Place a protective sand-and-gravel filter or boil ring over the exit area to hold materials in place if there is water leaking downstream or at the toe of the dam.
iii. If necessary, implement reservoir lowering procedures as provided in Appendix F

e. SEEPAGE AND HIGH LEVEL SATURATION OF THE DOWNSTREAM EMBANKMENT
   i. Conduct frequent monitoring for signs of slides, cracking or concentrated seepage.
   ii. Monitor the toe drains for signs of discoloring, sediment or unusually high flow or low or no flow.
   iii. If necessary, implement reservoir lowering procedures as provided in Appendix F.

f. SPILLWAY OVER TOPPING, THREATENING THE EMBANKMENT OR DOWNSTREAM AREA
   i. Provide temporary protection at the point of erosion by placing sandbags, riprap materials, or plastic sheets weighted with sandbags.

g. EXCESSIVE OR UNUSUAL SETTLEMENT OF THE EMBANKMENT
   i. Survey the embankment to establish a level line
   ii. Monitor the level line for unusual or continuous movement
   iii. If unusual or continuous movement is occurring implement procedures to lower the reservoir by following the reservoir evacuation procedures in Appendix F.
   iv. Lower the water level by pumping water out of the reservoir following the reservoir lowering procedures in Appendix F.
   v. If necessary, restore freeboard, preferably by placing sandbags.

B. Emergency Supplies and Resources

Granite Concrete 525 Spencer Road Libby, MT 59923 (406)-293-7755	Ace Hardware 507 W 9th St Libby, Montana (406) 293-2735

A map of potential locations for soil and rock materials for emergency repairs is shown in Appendix G. The closest source of readily available soils for emergency repairs exists in the vicinity of the Mill Pond area, less than a ¼ mile downstream of the dam. The soil is heavily contaminated with asbestos and should only be used in extreme emergency. The material is typically composed of vermiculite within the local soils which are silts, clays and gravels. The mixture makes a suitable fill material for stopping seepage such as around the box culvert, to plug upstream sink holes or to level the crest in the event of an over topping emergency.

There is a rock, sand and gravel pit that has an access road form the west side of Rainy Creek shown on the map and there is an additional source of non-contaminated finer grain soils and gravel on the east side of the road. The sites are shown on the Appendix G map. Both sites are below them dam and could not be accessed during a flood.

Above the dam glacial till material of fine grained soil and rock can be obtained almost anywhere off of the Rainy Creek road and are readily available. Near Fleetwood Creek there is an access road to the fine grain soils from the former tailings pile as shown. The material is heavily contaminated and should only be used in the event of an extreme emergency.

Ballast rock is available within the abandoned and reclaimed vermiculite mining site northeast of the dam as well as the toe of the old mine site on the south side of the mine site up the Carney Creek road. Again, the rocks are often contaminated and are occasionally composed entirely of asbestos laden material. A map of potential and know sources of soils and rock as well as the general location of the access roads to the sites are shown on the Soil and Rock Materials Sites map in Appendix G

C. Local Contractors and Engineers

Local Contractors:	Engineer:
Chapman Construction Mike Chapman Home: 406-293-8305 Cell: 406-293-1983	Billmayer & Hafferman Inc. Kurt Hafferman, P.E. Office: 406-257-8708 Cell: 406-212-0404

APPENDIX

APPENDIX A

Technical Data for Kootenai Development Impoundment Dam

Max Reservoir Capacity to the Crest of the Dam:..... 1219 acre feet

Elevation at the Crest of the Dam (MSL Datum: NGVD 29): .....2927.5 feet MSL

Reservoir Capacity at the Crest of the Earthen Emergency Spillway .....937 acre feet

Water Depth Measured from the invert of the Emergency Spillway to the crest .....4.0 feet

Elevation of the Invert of the Earthen Emergency Spillway.....2922 ft. MSL

Earthen Emergency Spillway Capacity at Crest of Dam..... 1,129 cubic feet per second

Principal Spillway Invert Elevation.....2900 ft. MSL

Principal Spillway Capacity at Crest of Dam:.....765 cubic feet per second

Elevation of the Invert of the Principal Spillway Entrance Channel .....2903 ft. MSL

Normal Reservoir Capacity Measured to the Invert of the Principal Spillway Entrance Channel at elevation 2903:..... 29 acre feet

Upstream Dam Height Measured From the Principal Spillway to the Crest:.....26 feet

Dam Height Measured From the Downstream Toe to the Crest: ..... 130 feet

Dam Crest Width:.....40 feet

Dam Width at Base:.....400 feet

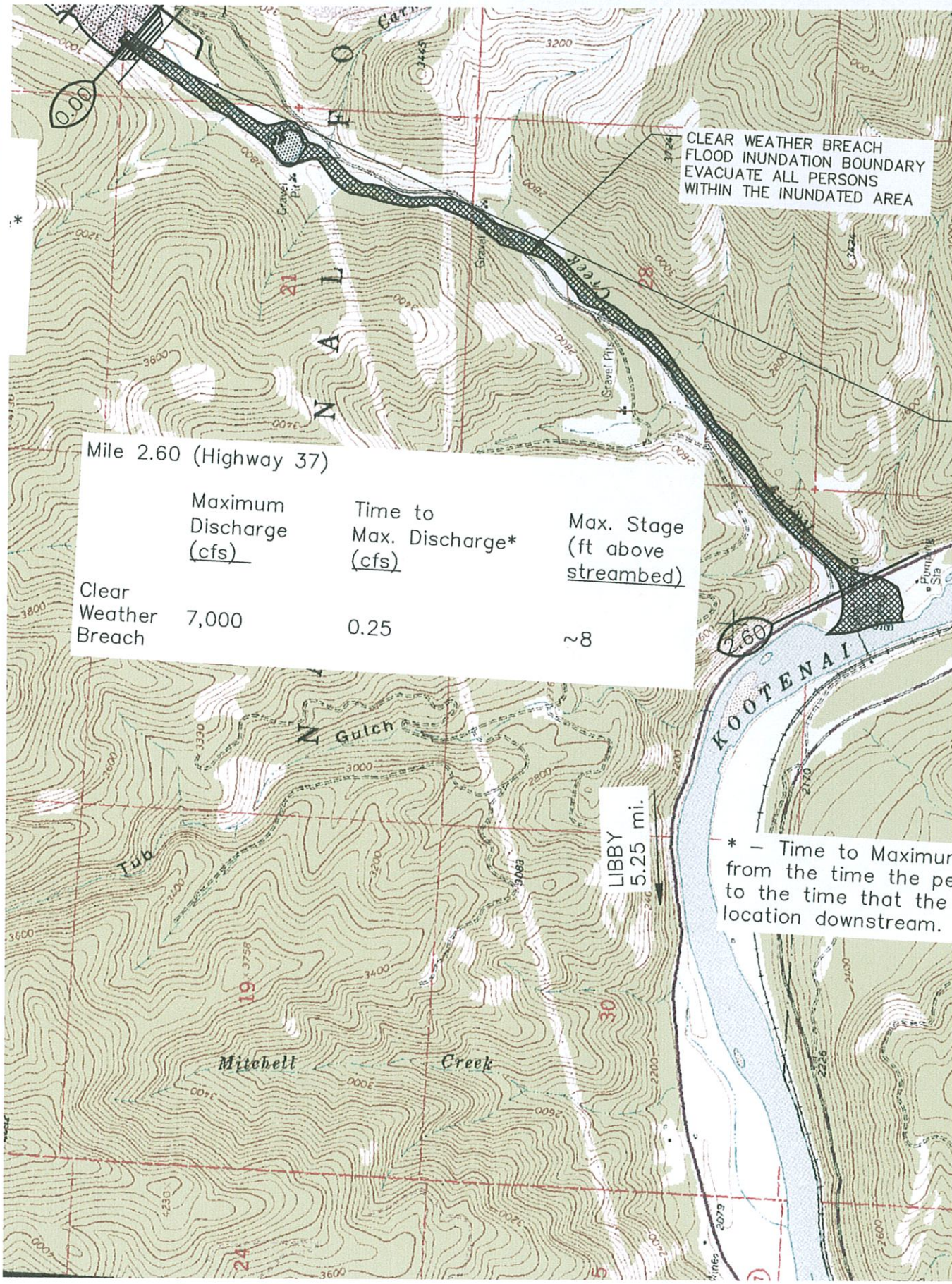
Length of Dam Crest .....1,100 feet

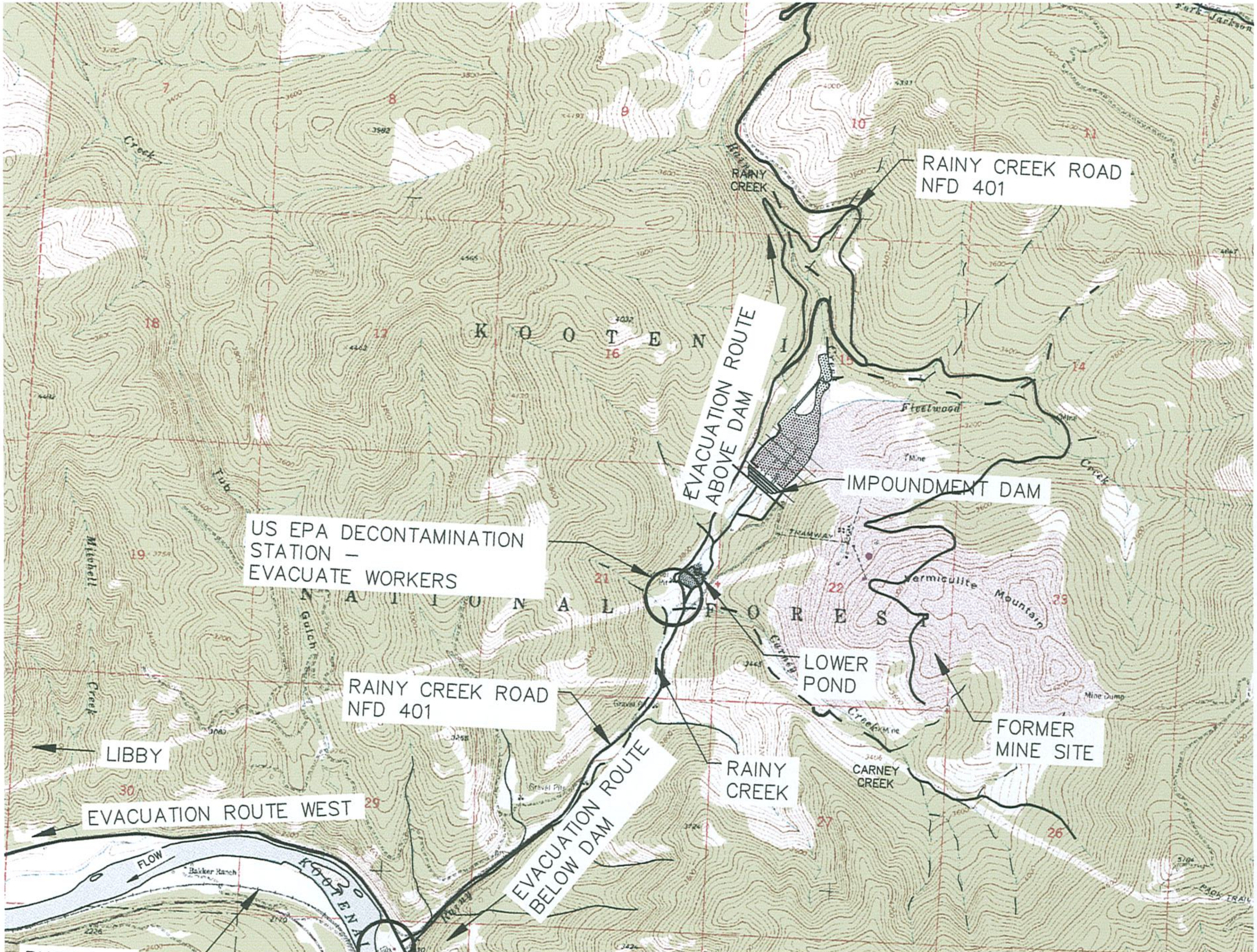
Date Constructed 1971

Slope of Upstream Face of Dam (Horizontal to Vertical) ----------2:1
Slope of Downstream Face of Dam (Horizontal to Vertical)----------2:1

APPENDIX B

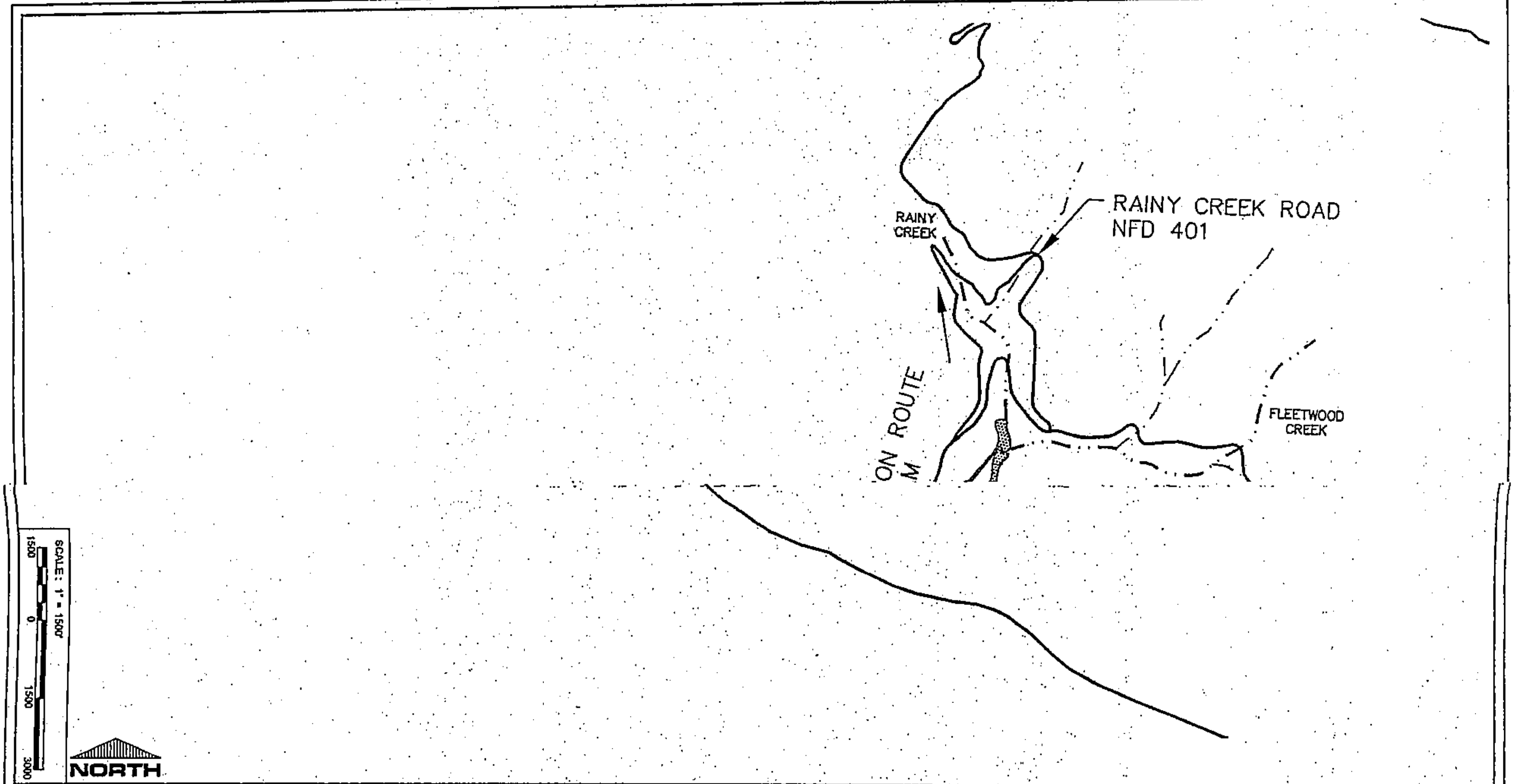
INUNDATION AND EVACUATION MAPS


CLEAR WEATHER BREACH
FLOOD INUNDATION BOUNDARY
EVACUATE ALL PERSONS
WITHIN THE INUNDATED AREA
Mile 2.60 (Highway 37)
Maximum Discharge (cfs)
Time to Max. Discharge* (cfs)
Max. Stage (ft above streambed)
Clear Weather Breach
7,000
0.25
~8
0.00
2.60
KOOTENAI
N Gulch
Tub
Mitchell Creek
LIBBY
5.25 mi.
* – Time to Maximur
from the time the pe
to the time that the
location downstream.



RAINY CREEK ROAD
NFD 401
RAINY CREEK
KOOTENAI NATIONAL FOREST
EVACUATION ROUTE ABOVE DAM
IMPOUNDMENT DAM
Fleetwood Creek
Vermiculite Mountain
US EPA DECONTAMINATION STATION — EVACUATE WORKERS
LOWER POND
RAINY CREEK ROAD
NFD 401
FORMER MINE SITE
Mine Dump
LIBBY
RAINY CREEK
CARNEY CREEK
Carney Creek
EVACUATION ROUTE WEST
EVACUATION ROUTE BELOW DAM
FLOW
Bakker Ranch
Mitchell Creek
Gulch
Tub

EVACUATION



EVACUATION ROUTE MAP

FOR

KOOTENAI DEVELOPMENT IMPOUNDMENT DAM

T. 31N., R. 30W., P.M., M., LINCOLN COUNTY, MONTANA

REVISIONS		BY
DATE	DESCRIPTION	

DRAWN BY: BLG APPROVED BY: KMH

BILLMAYER & HAFFERMAN, INC.

DRAWING TITLE: EVACUATION ROUTE

SCALE: AS SHOWN

DATE: DEC 10, 2008

PROJECT NO: R.56.4

DRAWING NUMBER: **Appendix B**

APPENDIX C

TELEPHONE DIRECTORY

KOOTENAI DEVELOPMENT IMPOUNDMENT DAM

TELEPHONE DIRECTORY

CHAPMAN CONSTRUCTION MIKE CHAPMAN	(H) 406-293-8305 (C) 406-293-1983
DEAN MILLS GODWIN PUMPS	(W) (406)-495-1335
J.JAY BILLMAYER P.E.	(W) 406-257-8708 (C) 406-212-0402
KURT HAFFERMAN P.E.	(W) 406-257-8708 (C) 406-212-0404 (H) 406-314-4541
LARRY SCHOCK DNRC MISSOULA	(W) 406-721-4284
LINCOLN COUNTY SHERIFF	911 OR 406-293-4112
LINCOLN COUNTY EMERGENCY MANAGEMENT DEPT.	911 OR 406-293-6295
MARC PITMAN DNRC KALISPELL	(W) 406-752-2713
MICHELE LEMIEUX, DNRC DAM SAFETY	(W) 406-444-6613 (C) 406-459-3572
NATIONAL WEATHER SERVICE	406-329-4718
ROBERT MARRIAM	(C) 901-277-9031 (W) 901-820-2023 (H) 662-236-6956
ROBERT MEDLER	(W) 901-820-2024 (H) 901-753-5833 (C) 901-493-5856
STATE DISASTER AND EMERGENCY SERVICES DUTY OFFICE OPERATOR KEN MESCH, DIRECTOR	 406-841-3911 406-841-3953

APPENDIX D

DAM INCIDENT REPORT FORM

APPENDIX D

DAM INCIDENT REPORT FORM

DATE: TIME:

NAME OF DAM:

STREAM NAME:

LOCATION:

COUNTY:

OBSERVER:

OBSERVER TELEPHONE:

NATURE OF PROBLEM:

LOCATION OF PROBLEM AREA (Looking Downstream):

EXTENT OF PROBLEM AREA:

FLOW QUANTITY AND COLOR:

WATER LEVEL IN RESERVOIR:

IS SITUATION WORSENING?

EMERGENCY STATUS:

CURRENT WEATHER CONDITIONS:

ADDITIONAL COMMENTS:

APPENDIX E

PLAN DISTRIBUTION LIST

PLAN DISTRIBUTION LIST

Mike Chapman
CHAPMAN CONSTRUCTION
P.O. Box 516
Libby, MT 59923

Marc Pitman
MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION
KALISPELL REGIONAL OFFICE
655 Timberwolf Parkway, Suite 4
Kalispell, MT 59901-2387

Michelle Lemieux
MONTANA DAM SAFETY PROGRAM
DEPARTMENT OF NATURAL RESOURCES & CONSERVATION
P. O. Box 201601
Helena, MT 59620-1601

Vic White, Director
LINCOLN COUNTY EMERGENCY MANAGEMENT AGENCY
952 Spruce
Libby, MT 59923

Robert Medler
REMEDIUM GROUP, INC.
6401 Poplar Ave., Suite 301
Memphis, TN 38119

Kurt Hafferman
BILLMAYER & HAFFERMAN, INC.
2191 3RD. Ave. East
Kalispell, MT 59901

Sheriff
LINCOLN COUNTY MONTANA
512 California Avenue
Libby, MT 59923

Larry Schock
MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION
P.O. Box 5004
Missoula, MT 59806-5004

APPENDIX F

RESERVOIR LOWERING PROCEDURE

Emergency Reservoir Lowering Procedure

If at any time if it is determined the dam is at risk and the reservoir level must be lowered the following procedures should be followed in order to complete a rapid and controlled drawdown of the level of the impoundment reservoir behind the KDID. The project engineer Billmayer & Hafferman and the Contractor, Chapman Construction shall be the responsible party to effect the reservoir evacuation and will provide the supervision, labor and materials and HAZWOPER procedures and equipment.

The system for lowering the reservoir is to mobilize portable pumps to the site with the appropriate lengths of pipe. The Contractor shall rent portable pump(s) capable of providing at least a five (5) cubic feet per second (cfs) (2,250 gpm) discharge rate. Typical conditions on site will have a maximum suction head of 12 feet and will need to be capable of full discharge with approximately 10 ft. of elevation and between 130 ft. and 150 ft. of total dynamic head (TDH). The pump(s) shall be equipped with a diesel or gas engine and mounted on a wheeled trailer for ease of movement. The Godwin CD225M Dri-Prime® pump meets these criteria at a minimum. Specifications for the Godwin CD225M Dri-Prime® are included in this appendix to this procedure. The availability of the pumps is provided below.

During typical minimum pool conditions, the pumps must be sufficient to control the inflow as well as lower the reservoir within one day (24 hours). Two Godwin pumps can lower the minimum pool reservoir in 24 hours and one Godwin pump can control the inflow. During normal pool or higher, the number of pumps will depend on the reservoir contents and inflow. The Contractor and engineer must coordinate to determine the number of pumps and their location. The amount of pipe will depend on where the pumps can be located which will depend on the reservoir level.

Sufficient amounts of rigid pipe shall be obtained from local sources in Libby, Kalispell or Spokane or were available. The pipe is intended to reach from an intake point of the impoundment reservoir to the pump and from the pump to the discharge point at the entrance to the box culvert. Water should directly discharged into the box culvert to prevent recycling water back to the reservoir or through the embankment.

Primary and alternate pump and pipe locations are indicated on the attached "Emergency Drawdown Map". For a single pump approximately 2355LF of pipe is required from the primary pump location and 1343LF from the alternate pump location. All pipes shall be capable of attaching to the pump without the use of enlargers or reducers. The Godwin

CD225M pump discharge pipe is typically 8-inch and can be either rigid PVC or flexible PVC or HDPE.

If the reservoir level is at normal pool or greater, the pumps must be located above the elevation of the spillway on the west side of the reservoir at the primary location. If the reservoir is low, and the ground is dry one or more pumps can be located on the east side of the reservoir at the secondary location near the spillway entrance channel. A map showing locations for the pump(s) in a low reservoir level or high reservoir level is attached. The length of pipe and number of pumps for each location and potential flow rate is shown below;

Pump Location	**Reservoir Level**	**Estimated Inflow**	**Number of Pumps Required**	**Length of 8-inch pipe**
West Side Primary	Minimum pool	2 cfs	3	7065 lin. ft.
West Side Primary	Normal high water at Spillway channel	20 cfs	6	9,500 lin. ft.
East Side	Minimum pool	5 cfs	1	1343 lin. ft.

The pump or system of pumps must be mobilized and set up and the discharge pipe connected by the Contractor. Emergency pumps shall be manned 24hrs a day until lowering of the reservoir is no longer required. It is advised to install portable lighting at the pump site locations and have extra fuel available on site. Work accommodations such as shelter, food, water and first aid supplies should be provided. Access into and out of the site should be established.

A primary and secondary means of communication should be established.

The drawdown will continue until it has been determined by the project engineer that the dam has stabilized and is no longer at risk.

Dean Mills of Godwin Pump in Helena Montana was contacted on Friday, March 13, 2009 to determine pump availability. Mr. Mills stated that this pump is available in Helena. They currently have three (3) in the Helena yard and an additional eleven (11) in Godwin's Seattle yard. In addition, Godwin could supply several other models capable of meeting the specified criteria with single or multiple pump configurations. Pumps are delivered to the site by Godwin and can be shipped immediately for emergency use. Godwin Contact information:

Dean Mills
Godwin Pumps
3860 Helberg Drive
Helena, MT 59602
(406) 495-1335 voice
(406) 495-1336 fax